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Marduk Baladan, is said to have held Babylon twelve years, which is the exact time that the Canon gives to Mardokempadus, the predecessor of Arkianus. After this he was driven to Chaldea. Dr. Hincks maintains that his father, Yagin, the Yugæus of the Canon, was also the father of Sargon, and that having conquered Assyria, he left it to Sargon, while his ancient kingdom of Chaldea was assigned to Marduk Baladan. On this supposition he accounts for the cancelled inscriptions on the reverse of the pavements, in which the title of King of Babylon, borne by most other kings of Assyria, is omitted.

Alexander Mac Donnell, Esq., communicated, through Dr. Apjohn, a notice on the results of certain experiments instituted by him for fixing the atomic weight of magnesium.

In experimenting on the true atomic weight of magnesium, the method which I used was to find the exact composition of sulphate of magnesia, a salt whose formula is known with certainty to be $Mg\,O, S\,O_3 + 7\,H\,O$, and which admits of being rendered perfectly anhydrous without losing any of its acid.

Some of the crystallized salt was deprived of all hygrometric moisture by placing it in the vicinity of a dish of oil of vitriol under the receiver of an air-pump. The water of crystallization being then expelled by a low red heat, the composition of the crystallized salt was found to be—

Water, ...	51.17	51.13	51.14	51.26	51.28	51.29
Sulphate of Magnesia,	48.83	48.87	48.86	48.74	48.72	48.71
	100	100	100	100	100	100

The sulphuric acid was then precipitated from the anhydrous salt with chloride of barium. The sulphuric acid calculated from the sulphate of barites thus formed showed the composition of the anhydrous salt to be—

Sulphuric acid, .	66.67	66.73	66.64	66.65	66.69
Magnesia, . .	33.33	33.27	33.36	33.35	33.31
	100	100	100	100	100

The means of these two series of results gives the following as the true composition of the salt—

Crystallized salt,	Water, ...	51.21
	Sulphate of magnesia,	48.79
		100
Anhydrous salt,	Sulphuric acid, . . .	66.67
	Magnesia, ...	33.33
		100

If the atomic weight of magnesium was 12.7, the composition of the salt would be—

Crystallized salt,	Water, ...	50.93
	Sulphate of magnesia,	49.07
		100
Anhydrous salt,	Sulphuric acid, . . .	65.89
	Magnesia, ...	34.11
		100

If the atomic weight of magnesium was 12, the composition of the salt would be—

Crystallized salt,	Water, ...	51.22
	Sulphate of Magnesia, .	48.78
		100
Anhydrous salt,	Sulphuric acid, . .	66.667
	Magnesia, ...	33.333
		100

It will be seen at once how very nearly the atomic weight of 12 corresponds with the composition given by experiment.

In order to further test the correctness of the conclusion thus arrived at, I added 108.60 grains of anhydrous chloride of barium to 60.05 grains of anhydrous sulphate of magnesia. This gave 116.65 grains of sulphate of barites; to the washings of this I added sulphuric acid, which gave 4.97 grains of sulphate of barites, which is equivalent to 4.43 grains of chloride of barium. I must, therefore, have used 4.43 grains of chloride of barium more than was necessary to precipitate all the sulphuric acid from the sulphate of magnesia, so that 104.17 grains of chloride of barium is sufficient to precipitate all the sulphuric acid from 60.05 of sulphate of magnesia, or 104 grains of chloride of barium would precipitate the sulphuric acid from 59.95 grains of sulphate of magnesia. This makes the atomic weight of magnesia 19.95, or *quam proxime*, 20.

My final experiment was as follows:—

I dissolved 41.44 grains of pure magnesia in sulphuric acid, and having evaporated the solution to dryness, and exposed the residuum to a low red heat for about an hour and a half, the resulting sulphate of magnesia was found to weigh 124.40 grains. 41.44 grains, therefore, of magnesia, and 82.96 of sulphuric acid, form 124.40 grains of sulphate of magnesia; or 40 grains of sulphuric acid and 19.98 grains of magnesia form 59.98 grains of sulphate of magnesia, which gives 19.98 as the atomic weight of magnesia. If 12.7 was the atomic weight of magnesium, 41.44 grains of magnesia would have given 121.51 grains of sulphate of magnesia, and not 124.40 grains.

N.B.—The following were the atomic weights used in calculating the experiments just described:—

$S\,O_3 = 40$
$Cl = 35.5$
$Ba = 68.5$

Monday, June 14th, 1852.

THOMAS ROMNEY ROBINSON, D.D., President, in the Chair.

Lundy E. Foot, Esq., was elected a Member of the Academy.

On the recommendation of the Council, it was Resolved:—

That the sum of £50 be placed at the disposal of the Committee of Antiquities for the purchase of articles for the Museum.

The Sec[illegible] [illegible]ited a pass, dated 29th August, 1687, granted by King James II. to "The Betty of Dublin," William Patrick, master, to allow the said ship to make one voyage from Dublin to Lisbon. Attached to this document were the signatures of the King and Pepys.

Sir William Betham presented a drawing of an ancient canoe found in the river Brosna, under the temporary bridge at Firbane; on the 2nd of May, 1851; also, an impression of a wooden seal found at Wigan, and bearing the inscription,

+ SIG: OSWALDI DE BOLTVNE.

Dr. Apjohn made some remarks upon the chemical composition and optical characters of a rare mineral called Pennine, presented to the Museum of Trinity College by Professor Jellett, and brought by him from the Valley of St. Nicholas, in Switzerland.

This mineral, having been for some time considered as a new one, was submitted to analysis in the Laboratory of Trinity College, and with the following results:—